



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) J. Elijah Suchard	Project Number J2125
Project Title Does Temperature Affect Bounciness of a Lacrosse Ball?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project was to determine if temperature affects the bounciness of a lacrosse ball. I hypothesized that a colder lacrosse ball would bounce higher than a room temperature or hot lacrosse ball, because it is more rigid.</p> <p>Methods/Materials I dropped lacrosse balls of three different temperatures (freezer -2C, room temperature, boiling water 100C) onto a marble slab, and measured the height of the first bounce. Each measurement was repeated 3 times, and the results were averaged. The height that the ball was dropped from (H) and the height of the first bounce (h) were used to calculate the Coefficient of Restitution, which is the square root of (h/H).</p> <p>Results The room temperature lacrosse ball bounced the highest (71cm from a drop of 100cm). The cold lacrosse ball bounced the least (46cm from a drop of 100cm), and the hot lacrosse ball was in between (62cm from a drop of 100cm). The Coefficient of Restitution was 0.85 for the room temperature ball, 0.68 for the cold ball, and 0.79 for the hot ball.</p> <p>Conclusions/Discussion My hypothesis was incorrect. The cold lacrosse ball did not bounce the highest. The room temperature ball bounced higher than either a cold or hot lacrosse ball. The cold ball may have been too rigid to bounce as well, and the hot ball too squishy. From this I infer that lacrosse balls are probably manufactured to bounce best at room temperature.</p>	
Summary Statement My project was to measure how temperature affects the bounciness of a lacrosse ball.	
Help Received My mother and father helped measure, edit and organize.	